

Trend Study 10-24-00

Study site name: Turner Canyon .

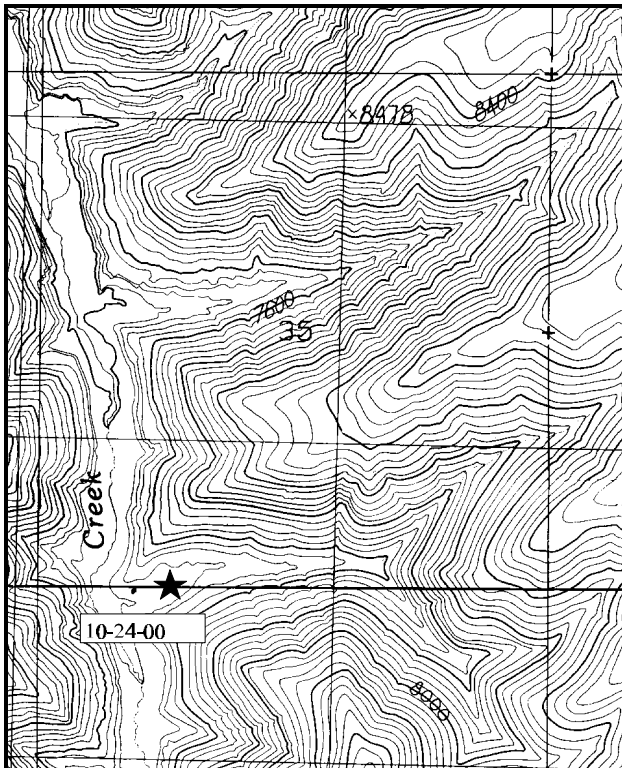
Range type: Basin Wild Rye .

Compass bearing: frequency baseline 225/M .

First frame placement on frequency belts 5 feet. Frequency belt placement; line 1 (11ft), line 2 (34ft), line 3 (59ft), line 4 (71ft), line 5 (95ft).

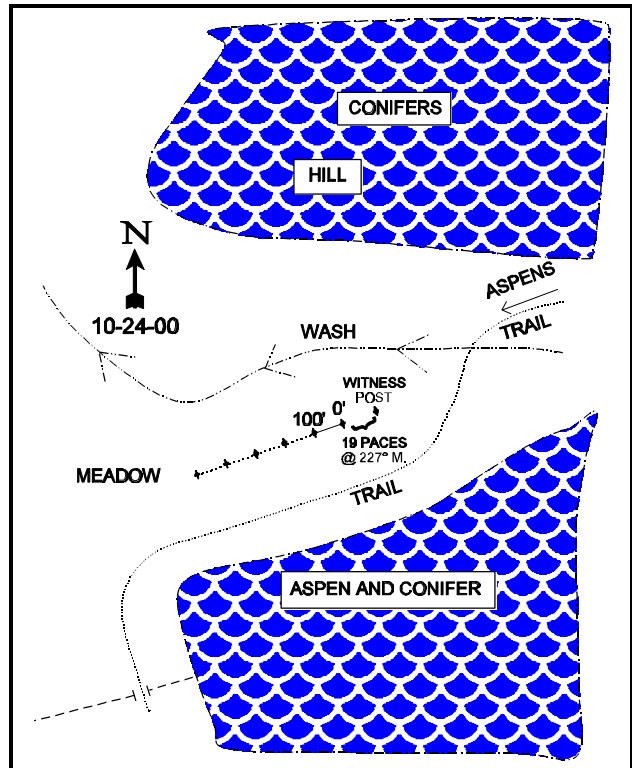
LOCATION DESCRIPTION

From the road closed sign walk for about 30-40 minutes south along Diamond Ridge until you reach a definite fork in the trail and a rock cairn. The fork to the right is the Turner Canyon Trail. It is well worn and used by horses. Follow the Turner Canyon Trail to the bottom of the canyon where you will go through a gate. Continue down the trail until you break out of the aspen into the wider part of the canyon mouth. The transect will be on the south side of the wash in a basin wildrye and grass type. A witness post will be there marking the transect. From the witness post walk 19 paces at 227°M to the 0 foot baseline stake. The baseline runs 225°M.



Map Name: Tenmile Canyon South .

Township 18S , Range 21E , Section 2



Diagrammatic Sketch

UTM. 4348535.088 N, 623523.418 E

## DISCUSSION

### Trend Study No. 10-24 (16B-11)

The Turner Canyon transect samples a canyon bottom at the mouth of Turner Canyon where it joins East Willow Canyon. Elevation at the site is 7,500 feet with a west-southwest aspect. There is only a slight slope of 1-3% which drains into East Willow Canyon. The slopes of the canyon surrounding the meadow are covered with conifers and aspen. On the north side of the transect is a gully about 15 feet deep. In 1990, it was reported as having little vegetation on the sides with signs of active cutting. In 1995 and 2000, the gully was healing with vegetation covering the sides and no apparent erosion problems. Supposedly, there has been no livestock grazing since 1990, although light use by cattle was noted in 2000. Pellet group data estimate 2 cow days use/acre (5 cdu/ha) in 2000. Use by wildlife is currently light. Pellet group transect data from 2000 estimate 9 elk days use/acre (22 edu/ha).

The soil is a deep sandy loam with very few rocks showing. Estimated effective rooting depth is over 35 inches with average soil temperature being 48°F at 18 inches in depth. No rock was sampled with penetrometer readings so the stoniness index is a measure of soil compaction. Vegetation and litter cover are high at 56% and 71% in 1995, increasing to 67% and 80% in 2000. These provide excellent protection to the soil, allowing negligible erosion to occur. Less rock and pavement have been encountered with each successive reading and currently combine for less than 2% average cover. Percent bare ground also declined from 15% in 1990 to 5% in 1995, and only 4% in 2000.

Basically, the only shrub sampled on the site is fringed sagebrush. It had an estimated density of 5,866 plants/acre in 1990, increasing to 21,940 plants/acre in 1995, and 5,620 plants/acre in 2000. The large difference between 1995 and 2000 is most likely due to the unusually wet spring of 1995 causing a large increase in density, then with drought in 2000, this species returned to more normal levels. Currently, most of the population is mature plants (81%) with moderate recruitment from the young age class (19%). These plants do not appear to be utilized and exhibit good vigor. The population may be slightly increasing, but the age structure of mature and young plants are fairly stable. Mountain big sagebrush was also sampled in 1995 and 2000 and estimated at 20 plants/acre. Mountain big sagebrush can be found on the other side of the canyon and appears to be slowly moving into the flat.

The dominant grass on the site is Kentucky bluegrass. This grass contributes nearly 30% of the total vegetative cover in 1995 and 2000. This species is considered good for forage and erosion control. However, Kentucky bluegrass is an aggressive increaser with moderate to heavy grazing. It is a rhizomatous sod former and is able to out-compete many species of grasses and forbs. Thickspike wheatgrass, Great Basin wildrye, and needle-and-thread grass are also present. In 2000, it was difficult to identify grasses because of very few seed heads. This may partly account for large decrease in thickspike and subsequent increase in needle-and-thread in 2000. Great Basin wildrye occurs in large clumps and is the most conspicuous species on the site. Other grasses that occur infrequently include: blue grama, cheatgrass, prairie junegrass, and alkali muhly. In 1995, sum of nested frequency for perennial grasses increased with several additional species being sampled. However, sum of nested frequency decreased for perennial grasses in 2000, most likely due to the dry conditions.

The most abundant forb sampled in 1995 and 2000 was cinquefoil which accounts for 32% of the total forb cover in both years. This is considered an increaser and grows relatively low to the ground. Other low growing, increaser forbs encountered on the site include: western yarrow, Rose pussytoes, Pacific aster, and dandelion. Dandelion was the most abundant forb in 1990 when the site was established. The abundance of these forbs would indicate a long history of overgrazing. Sum of nested frequency for perennial forbs also decreased in 2000, again mostly due to the dry conditions.

## 1995 TREND ASSESSMENT

Fringed sagebrush would not be available as forage in the winter, while in the summer, grasses would be preferred before the fringed sagebrush would be utilized. The abundance of fringed sagebrush is an indication of past overgrazing and misuse of the area. The drastic increase in density is likely due to the unusually wet spring in 1995. Browse trend at this time is stable, although, a different shrub component is likely preferred. Herbaceous understory trend is also stable, but most of the forbs are increasers. These, along with the abundant Kentucky bluegrass, all indicate past misuse of the area. The gully located on the north side of the transect appears to be healing and there is no apparent erosion taking place at this time. Percent bare ground has declined from 15% in 1990 to only 5%. Vegetative and litter cover are abundant and contribute to an upward soil trend.

### TREND ASSESSMENT

soil - upward (5)

browse - stable (3)

herbaceous understory - stable, but better grass and forb composition is desired; this will change through time (3)

## 2000 TREND ASSESSMENT

Trend for soil is stable. Vegetation and litter cover are dense and bare ground remains low. Trend for browse is stable but unimportant on this summer range site. Fringed sagebrush had a large decrease in density, but this species provides less than 1% cover and is not an important forage plant. Trend for the herbaceous understory is slightly down due to decreases in sum of nested frequency for perennial grasses and forbs.

### TREND ASSESSMENT

soil - stable (3)

browse - stable, but unimportant (3)

herbaceous understory - slightly down (2)

## HERBACEOUS TRENDS --

Herd unit 10 , Study no: 24

T y p e	Species	Nested Frequency			Quadrat Frequency			Average Cover %	
		'90	'95	'00	'90	'95	'00	'95	'00
G	Agropyron dasystachyum	<sub>b</sub> 251	<sub>b</sub> 245	<sub>a</sub> 91	84	81	36	7.64	2.07
G	Bouteloua gracilis	<sub>b</sub> 7	<sub>ab</sub> 4	<sub>a</sub> -	4	2	-	.01	-
G	Bromus tectorum (a)	-	2	-	-	1	-	.03	-
G	Elymus cinereus	52	56	54	26	22	18	8.48	8.01
G	Koeleria cristata	<sub>a</sub> -	<sub>b</sub> 6	<sub>a</sub> -	-	3	-	.18	-
G	Muhlenbergia asperifolia	<sub>a</sub> -	<sub>b</sub> 11	<sub>a</sub> -	-	5	-	.05	-
G	Poa pratensis	318	324	281	89	92	83	16.29	18.61
G	Stipa comata	<sub>a</sub> 116	<sub>a</sub> 121	<sub>b</sub> 201	42	40	60	6.26	20.46
Total for Annual Grasses		0	2	0	0	1	0	0.03	0
Total for Perennial Grasses		744	767	627	245	245	197	38.93	49.17
Total for Grasses		744	769	627	245	246	197	38.96	49.17

Type	Species	Nested Frequency			Quadrat Frequency			Average Cover %	
		'90	'95	'00	'90	'95	'00	'95	'00
F	<i>Achillea millefolium</i>	<sub>a</sub> 22	<sub>b</sub> 73	<sub>b</sub> 59	11	29	24	1.66	1.48
F	<i>Agoseris glauca</i>	-	-	5	-	-	2	-	.15
F	<i>Antennaria rosea</i>	<sub>a</sub> 9	<sub>ab</sub> 20	<sub>b</sub> 30	3	7	10	1.03	2.08
F	<i>Androsace septentrionalis</i> (a)	-	<sub>b</sub> 25	<sub>a</sub> 9	-	9	3	.04	.06
F	<i>Arabis</i> spp.	<sub>a</sub> -	<sub>b</sub> 20	<sub>a</sub> -	-	8	-	.23	-
F	<i>Artemisia dracunculus</i>	<sub>a</sub> -	<sub>b</sub> 49	<sub>b</sub> 61	-	20	25	1.80	2.29
F	<i>Aster chilensis</i>	32	32	34	10	11	13	1.00	.86
F	<i>Chenopodium leptophyllum</i> (a)	-	<sub>b</sub> 30	<sub>a</sub> -	-	14	-	.49	-
F	<i>Crepis acuminata</i>	<sub>b</sub> 17	<sub>a</sub> -	<sub>a</sub> -	6	-	-	-	-
F	<i>Cryptantha</i> spp.	<sub>b</sub> 67	<sub>a</sub> -	<sub>a</sub> -	32	-	-	-	-
F	<i>Descurainia pinnata</i> (a)	-	<sub>b</sub> 9	<sub>a</sub> -	-	4	-	.02	-
F	<i>Erigeron flagellaris</i>	21	11	9	8	5	3	.22	.09
F	<i>Erigeron pumilus</i>	<sub>a</sub> -	<sub>a</sub> -	<sub>b</sub> 11	-	-	5	-	.07
F	<i>Lappula occidentalis</i> (a)	-	11	3	-	5	1	.05	.00
F	<i>Lithospermum ruderales</i>	<sub>b</sub> 17	<sub>a</sub> -	<sub>a</sub> -	10	-	-	-	-
F	<i>Microsteris gracilis</i> (a)	-	4	-	-	3	-	.21	-
F	<i>Oenothera pallida</i>	<sub>c</sub> 115	<sub>b</sub> 86	<sub>a</sub> 12	52	37	6	1.37	.06
F	<i>Penstemon</i> spp.	<sub>b</sub> 28	<sub>a</sub> -	<sub>a</sub> -	13	-	-	-	-
F	<i>Phlox longifolia</i>	<sub>b</sub> 27	<sub>a</sub> -	<sub>a</sub> 2	12	-	2	-	.01
F	<i>Potentilla anersina</i>	<sub>b</sub> 12	<sub>a</sub> -	<sub>a</sub> -	4	-	-	-	-
F	<i>Polygonum douglasii</i> (a)	-	<sub>b</sub> 25	<sub>a</sub> -	-	12	-	.11	-
F	<i>Potentilla gracilis</i>	<sub>b</sub> 145	<sub>a</sub> 158	<sub>a</sub> 163	64	67	71	4.29	3.99
F	<i>Taraxacum officinale</i>	176	100	74	71	47	35	.58	.85
F	<i>Tragopogon dubius</i>	<sub>a</sub> 4	<sub>ab</sub> 9	<sub>b</sub> 17	3	5	11	.10	.29
F	<i>Vicia americana</i>	<sub>a</sub> -	<sub>b</sub> 8	<sub>ab</sub> 4	-	3	2	.04	.03
Total for Annual Forbs		0	104	12	0	47	4	0.93	0.07
Total for Perennial Forbs		692	566	481	299	239	209	12.35	12.29
Total for Forbs		692	670	493	299	286	213	13.28	12.36

Values with different subscript letters are significantly different at  $\alpha = 0.10$  (annuals excluded)

#### BROWSE TRENDS --

Herd unit 10 , Study no: 24

Type	Species	Strip Frequency		Average Cover %	
		'95	'00	'95	'00
B	<i>Artemisia frigida</i>	96	73	6.01	.37
B	<i>Artemisia tridentata vaseyana</i>	1	1	-	-
Total for Browse		97	74	6.01	0.37

BASIC COVER --

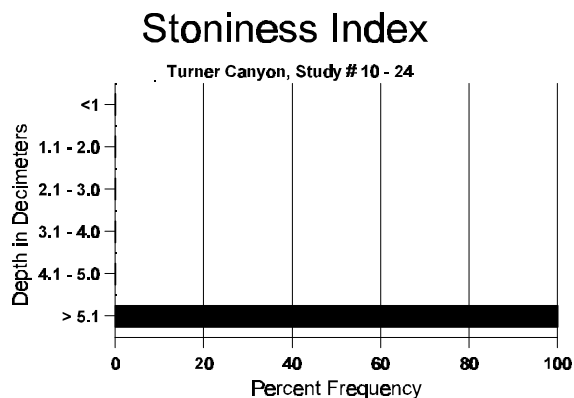
Herd unit 10 , Study no: 24

Cover Type	Nested Frequency		Average Cover %		
	'95	'00	'90	'95	'00
Vegetation	390	395	32.50	56.31	67.81
Rock	91	13	.25	.32	.21
Pavement	196	98	11.25	2.94	1.22
Litter	399	396	41.00	71.51	80.30
Cryptogams	22	7	0	.50	.18
Bare Ground	181	118	15.00	5.01	3.94

SOIL ANALYSIS DATA --

Herd Unit 10, Study # 24, Study Name: Turner Canyon

Effective rooting depth (inches)	Temp °F (depth)	pH	%sand	%silt	%clay	%OM	PPM P	PPM K	dS/m
35.07	48.4 (18.11)	7.9	57.3	24.2	18.6	2.9	17.4	416.0	0.7



PELLET GROUP FREQUENCY --

Herd unit 10 , Study no: 24

Type	Quadrat Frequency		Pellet Transect	
	'95	'00	Pellet Groups per Acre '00	Days Use per Acre (ha) '00
Rabbit	3	2	17	N/A
Horse	1	-	-	-
Elk	17	4	122	9 (24)
Deer	3	-	-	-
Cattle	1	-	26	2 (5)

## BROWSE CHARACTERISTICS --

Herd unit 10 , Study no: 24

Artemisia frigida																			
S	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.			Total
		1	2	3	4	5	6	7	8	9	1	2	3	4					
S	90	76	-	-	-	-	-	-	-	-	76	-	-	-	5066				76
	95	46	-	-	5	-	-	-	-	-	51	-	-	-	1020				51
	00	2	-	-	-	-	-	-	-	-	2	-	-	-	40				2
Y	90	40	7	2	-	-	-	-	-	-	47	-	2	-	3266				49
	95	155	-	-	48	-	-	-	-	-	203	-	-	-	4060				203
	00	53	-	-	-	-	-	-	-	-	53	-	-	-	1060				53
M	90	18	16	5	-	-	-	-	-	-	37	-	1	1	2600	0	1		39
	95	823	-	-	69	-	-	-	-	-	892	-	-	-	17840	15	8		892
	00	224	-	-	4	-	-	-	-	-	228	-	-	-	4560	5	6		228
D	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0				0
	95	-	-	-	2	-	-	-	-	-	2	-	-	-	40				2
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0				0
% Plants Showing		<u>Moderate Use</u>				<u>Heavy Use</u>				<u>Poor Vigor</u>				<u>%Change</u>					
'90		26%				08%				05%				+73%					
'95		00%				00%				00%				-74%					
'00		00%				00%				00%									
Total Plants/Acre (excluding Dead & Seedlings)														'90	5866	Dec:		0%	
														'95	21940			0%	
														'00	5620			0%	
Artemisia tridentata vaseyana																			
M	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-		0
	95	1	-	-	-	-	-	-	-	-	1	-	-	-	20	17	18		1
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-		0
D	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0				0
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0				0
	00	-	-	-	-	-	1	-	-	-	-	-	-	1	20				1
X	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0				0
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0				0
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	20				1
% Plants Showing		<u>Moderate Use</u>				<u>Heavy Use</u>				<u>Poor Vigor</u>				<u>%Change</u>					
'90		00%				00%				00%									
'95		00%				00%				00%				+ 0%					
'00		00%				100%				100%									
Total Plants/Acre (excluding Dead & Seedlings)														'90	0	Dec:		0%	
														'95	20			0%	
														'00	20			100%	